BUCKLING ANALYSIS ON PECHIKO FIELD OF FIXED OFFSHORE PLATFORM IN MAKASSAR STRAIT

Muhammad Zubair Muis Alie1,a, Yosua Riskianto Palentek2,b, Daud Geris Sesa3,c
1,2,3 Department of Naval Architecture and Ocean Engineering, Engineering Faculty, Hasanuddin University, Makassar South Sulawesi Indonesia
[a]bair_offshore@yahoo.co.id, [b]yoshuapalentek@ymail.com, [c]daud_geris@yahoo.com

Abstract. One of the most important criterions in the design of offshore platform is to have strength from applied loads which is acting perpendicular to section such as axial compression. The axial compressive load acts vertically downward to jacket legs and the deformation due to this load so-called buckling. In the present study, buckling analysis on fixed offshore platform is performed using Finite Element Analysis (FEA). The fixed jacket platform consists of four legs and tripod types are taken as the object of the analysis. Only the axial compressive load is used in the analysis and the boundary conditions are assumed to be fixed both tetrapod and tripod type at seabed. As a fundamental case, buckling analysis is considered in plane-section (2D). For the comparison purpose, the FE Analysis is compared to analytical solution i.e. hand calculation. It is found that the result obtained by FE Analysis is almost identic with the analytical solution obtained by hand calculation for critical buckling load.
Keywords: Buckling, Pechiko Fixed Offshore Platform, Finite Element Method